

***Ereymatermes rotundiceps*, new genus and species of termite from the Amazon Basin (Isoptera, Termitidae, Nasutitermitinae)**

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ABSTRACT - *Ereymatermes rotundiceps*, a new genus and species of termite collected in primary swamp forest at Jaraqui Island, Japurá River, near the town of Maraã, Amazonas State, Brazil is described. Drawings of imago head and mandibles, soldier head, and worker mandibles and digestive tube are presented.

KEY WORDS: termites, taxonomy, Isoptera, Termitinae, *Ereymatermes*.

RESUMO - *Ereymatermes rotundiceps*, novo gênero e nova espécie de cupim coletado numa floresta primária de várzea na Ilha Jaraqui, rio Japurá, próximo à cidade de Maraã, Amazonas, Brasil, é descrito. São apresentados desenhos da cabeça e mandíbulas do imago, da cabeça do soldado e das mandíbulas e tubo digestivo do operário.

PALAVRAS-CHAVE: cupins, taxonomia, Isoptera, Termitinae, *Ereymatermes*.

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INTRODUCTION

The soil-feeding nasute termites of the Neotropical Region are poorly known due mainly to the small size and subterranean habits of the majority of the species. They are, in general, rare in collections. In addition to their subterranean habits, these termites have in common the following: worker mandibles with a large apical tooth; molar ridges reduced or absent; soldier mandibles vestigial without points (except *Angularitermes*, which has distinct points); slow-moving soldiers and workers.

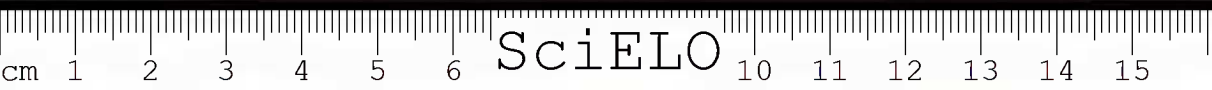
Although they have several common characteristics, the soil-feeding nasutes seem to be a polyphyletic group; these similarities are probably due to convergence related to common habits. Fontes (1979, 1982, 1987a, 1987b) studied the Neotropical species of this group of termites, established four new genera, and recognized four distinct patterns in the digestive tube of 14 Neotropical and Ethiopian genera.

As a result of intensive collecting that I am conducting in the Amazon Region, several new taxa of this group of termites have been discovered (Constantino 1990a; b). In this paper a new genus and species of soil-feeding nasutes from the forest of the lower Japurá River, Amazonas State, Brazil is described. The terminology used in this paper for the mandibles and digestive tube is the same as in Fontes (1987a; b), and the terms "worker with narrow gap" and "worker with wide gap" are used for the dimorphic worker caste.

Ereymatermes, gen. n.

TYPE SPECIES - *Ereymatermes rotundiceps*, sp.n.

IMAGO - Head rounded. Fontanelle medium-sized, elongated and slightly forked at tip. Eyes very large, bulging. Ocelli large and oval. Postclypeus about twice as broad as long, with midline visible and inflated in profile. Pronotum trapezoid-shaped, narrower than head and with rounded angles. Antennae with 15 segments. Mandibles similar to the worker with narrow gap but the inner margins of the apical teeth are more straight. Head with few long bristles and numerous short ones. Tibial spurs 2:2:2.



SOLDIER - Head capsule broad and rounded, without constriction. Nasus thin, long, conico-cylindrical and slightly oriented upward in profile. Labrum small, much broader than long, with sides rounded and oriented forward. Vestigial mandibles without points. Antenna with 12 segments. Pronotum much narrower than head. Head and nasus with numerous microscopic hairs. Tibial spurs 2:2:2.

WORKER - Dimorphic.

Worker with narrow gap (more frequent worker type)³. Left mandible: angle between apical tooth and first plus second marginal tooth acute; cutting edge of first plus second marginal tooth almost straight; distinct third marginal tooth; molar tooth hidden beneath the molar prominence. Right mandible with apical tooth greater than first marginal; second marginal tooth small; distance between second marginal and molar plate greater than distance between first and second marginals. Digestive tube: crop voluminous; gizzard with weakly sclerotized armature, without spines; mixed segment short, ventrally placed; malpighian tubules enlarged at base, insertion as in Fig. 18; first proctodeal segment cylindrical, shorter than mesenteron; enteric valve ventro-laterally placed; the armature (Fig. 13) consists of six equal sclerotized swellings (only two represented in figure) with numerous large spines arranged in a bowed line, paired longitudinally with six dome-shaped swellings with approximately five spines (below in the figure); rectum voluminous; coiling as in Figs. 14-17.

Worker with broad gap (less frequent worker type). Recognizable only by the left mandible, which has a greater distance between the third marginal tooth and the molar prominence; a small, but distinct, extra tooth between the third marginal and the molar prominence; and a smaller molar prominence.

³ Five workers out of seven examined were "narrow gap". No more specimens were examined because it is necessary to remove the mandibles.

COMPARISONS WITH OTHER NEOTROPICAL SOIL-FEEDING NASUTE GENERA

The closest genera are *Agnathotermes*, *Araujotermes*, *Atlantitermes*, *Coatitermes*, *Convexitermes* and *Subulitermes*, which have in common a dimorphic worker caste recognizable only by the mandibles and rather similar external morphology of the alates. *Ereymatermes* can be distinguished from these genera by the presence of a short mixed segment, a well-sclerotized enteric valve armature with six equal swellings (all other genera have two sizes of swellings arranged in a trilateral symmetry), large apical tooth on mandibulae (only *Agnathotermes* has a larger left mandible index) and a small extra tooth between the third marginal and the molar prominence in the left mandible of alates and of workers with broad gap. Other differences are listed below.

Agnathotermes. Alate: eyes and ocelli smaller; head, pronotum and labrum with only short hairs; top of head straight in profile. Soldier: head narrower, with a constriction behind antennae; nasus broad and conical. Worker: mandibles with larger apical tooth; cutting edge of first plus second marginal tooth concave; enteric valve armature with only large spines, not arranged in a line.

Araujotermes. Alate: narrower head with smaller eyes; pronotum longer; numerous long bristles on head and pronotum. Soldier: head elongated, pear-shaped, with numerous long bristles and without microscopic hairs; nasus forward oriented. Worker: third marginal tooth of left mandible more prominent; cutting edge of first plus second marginals sinuous; enteric valve armature weakly sclerotized, with only short spines.

Atlantitermes. Alate: very close and difficult to distinguish from *Ereymatermes*; smaller eyes and shorter and less inflated postclypeus. Soldier: narrower head with constriction behind antennae. Worker: cutting edge of first plus second marginal sinuous; third marginal of left mandible more prominent; molar ridges clearly visible.

Coatitermes. Alate: head and pronotum with longer bristles; fontanelle narrower and strongly forked at tip; eyes smaller, not touching the lower margin of head. Soldier: head narrow with a constriction behind antennae; nasus broad and conical; head with numerous medium to long bristles and without microscopic hairs. Worker: third marginal tooth of left mandible more prominent; enteric valve armature with less numerous spines, not arranged in a line.



Convexitermes. Alate: smaller eyes; smaller and less inflated postclypeus; posterior margin of pronotum rounded. Soldier: nasus broad and conical; head densely covered with short to long hairs. Worker: cutting edge of first plus second marginal tooth sinuous; third marginal of left mandible more prominent; molar ridges clearly visible; enteric valve armature weakly sclerotized with only small spines; pairs of Malpighian tubules fused at their proximal region, attached to a weakly developed mesenteric swelling.

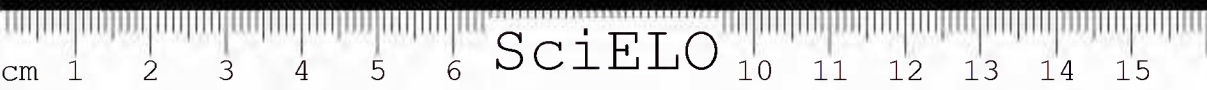
Subulitermes. Alate: smaller eyes; postclypeus shorter and less inflated; pronotum longer, with posterior margin rounded. Soldier: head elongated, pear-shaped; nasus forward oriented. Worker: cutting edge of first plus second marginal tooth sinuous; third marginal of left mandible more prominent; enteric valve armature weakly sclerotized with only a few small spines.

Ereymatermes rotundiceps, sp. n.

ALATES (Figs. 3-5, 7-8) - Males and females (no sexual dimorphism observed in the size and shape of head, pronotum and thorax). Head capsule dark-brown. Pronotum brown. Legs yellow-brown. Wing scales brown. Postmentum pale-brown. Postclypeus brown. Tergites brown. Sternites yellow. Wings chestnut brown. Antenna: second, third and fifth segments equal, greater than fourth. Eye touching the lower line of head in profile. Ocellus oval, close to eye. Fontanelle about same length as ocellus. Posterior margin of meso and metanotum concave or forming an obtuse angle. Pronotum with numerous short bristles and longer ones on margins. Tergites and sternites with many short bristles on the surface and a row of long bristles on posterior margin. Legs with numerous hairs and scattered bristles. Tibiae with numerous spines, a little thicker than bristles, on inner margin.

Measurements (in millimeters) of five alates of type-colony: length of hind wing from suture 7.90-8.55; width of hind wing 2.42-2.66; length of head from apex of postclypeus 0.92-0.93; lateral length of head from base of mandibles 0.77-0.86; width of head including eyes 1.06-1.10; height of head excluding postmentum 0.46-0.49; greatest diameter of eye 0.46; length of pronotum 0.84-0.90; length of hind tibia 1.32-1.38.

Ratios based on the measured alates: length of head including eyes to length of hind tibia 0.79-0.83; length of pronotum to length of hind tibia



0.37-0.41; length of pronotum to width of pronotum 0.56-0.62; width of head with eyes to greatest diameter of eye 2.30-2.39.

SOLDIER (Figs. 1-2) - Head yellow; nasus yellow-brown; antenna yellow; pronotum, mesonotum and metanotum yellowish-white; sclerites transparent. Antenna: third segment greater than second, fourth greater than third, fifth equal fourth. Top of head with sparse medium to long bristles and numerous microscopic hairs. Nasus covered with dense microscopic hairs, becoming longer toward apex. Tergites and sternites with numerous short bristles on surface, and a row of long bristles on posterior margin. Legs covered with numerous hairs and a few bristles. Tibiae with numerous spines, a little thicker than bristles, on inner margin.

Measurements (in millimeters) of five soldiers from type-colony: length of head to apex of postclypeus 0.92-1.00; length of head with nasus 1.54-1.62; height of head excluding postmentum 0.54-0.62; width of head 0.88-0.96; width of pronotum 0.46-0.48; length of hind tibia 0.81.

Ratios based on the measured soldiers: length of head with nasus to width of head 1.69-1.80; length of head without nasus to width of head 1.04-1.09; length of nasus to length of head without nasus 0.62-0.69.

WORKER (Figs. 6, 8-18) - Left mandible index 1.3 - 1.5. Head, antennae and legs pale-yellow. Pronotum yellow-white. Sclerites transparent, yellowish. Head as in Fig. 6. Postclypeus inflated. Chaetotaxy of abdomen and legs similar to that of soldier.

TYPE MATERIAL - Holotype soldier: BRAZIL. Amazonas State, Marã, Japurá River, Jaraqui Island, 01°51'S 65°27'W, primary swamp forest, 06.Oct.1988, R. Constantino col. (number MPEG 2790 in the collection of the Museu Paraense Emílio Goeldi, Belém, Brazil). Paratypes: soldiers, workers and alates, same data as holotype; and soldiers and workers from colony number MPEG 2788, same data. Part of lot MPEG 2790 deposited in the collection of the Museu de Zoologia da Universidade de São Paulo under number MZUSP 9447 (paratype alates, soldiers and workers).

BIOLOGY - The two known colonies were collected as inquiline in arboreal earthen termitaria built by an undescribed soldierless Apicotermiteinae.

DISCUSSION

The phylogenetic relationships of the new genus are not clear, although it seems to be related to the other Neotropical genera of soil-feeding nasutes. Some characters are confusing and there is no clear synapomorphy relating *Ereymatermes* with any other genus of the group, but *Angularitermes*, *Anhangatermes* and *Cyranotermes* are clearly distinct.

The enteric valve armature of *Ereymatermes* has six equal swellings (hexa-lateral symmetry) while all the others of the group have three major swellings alternating with three minor swellings (tri-lateral symmetry). The insertion of the Malpighian tubules is similar to that of *Atlantitermes*, *Araujotermes*, *Coatitermes* and *Subulitermes*, but *Ereymatermes* has a short mixed segment, not present in these genera. *Angularitermes*, *Anhangatermes* and *Cyranotermes* have also a short mixed segment, but of different shape.

The dimorphism in the mandibles of the workers is similar to that observed by Fontes (1987b) in *Convexitermes*, *Atlantitermes*, *Araujotermes*, *Coatitermes*, *Subulitermes* and *Agnathotermes*. The origin and biological significance of this dimorphism is unknown, and no other difference was observed between the two types of worker.

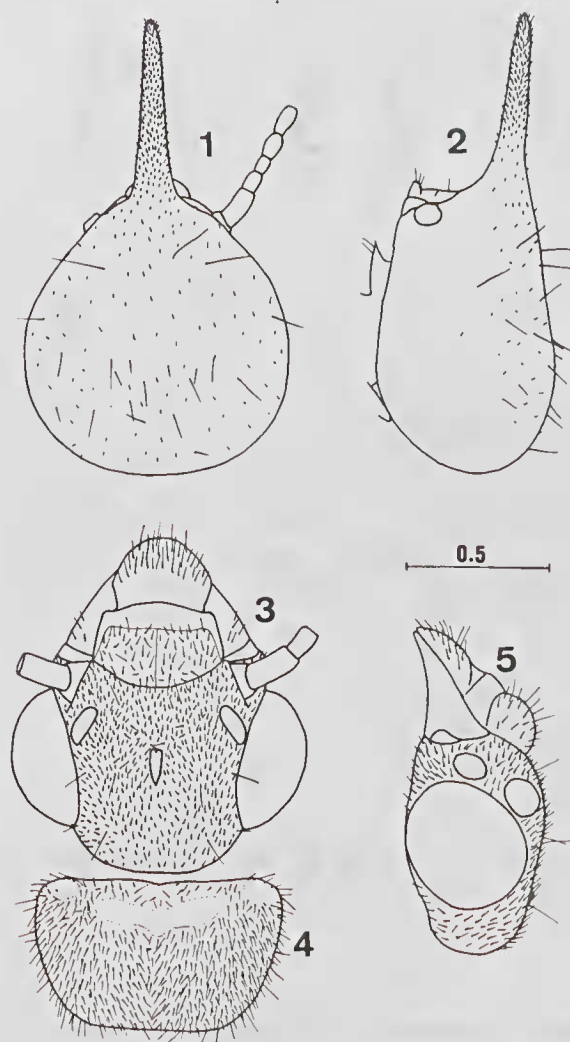
ACKNOWLEDGEMENTS

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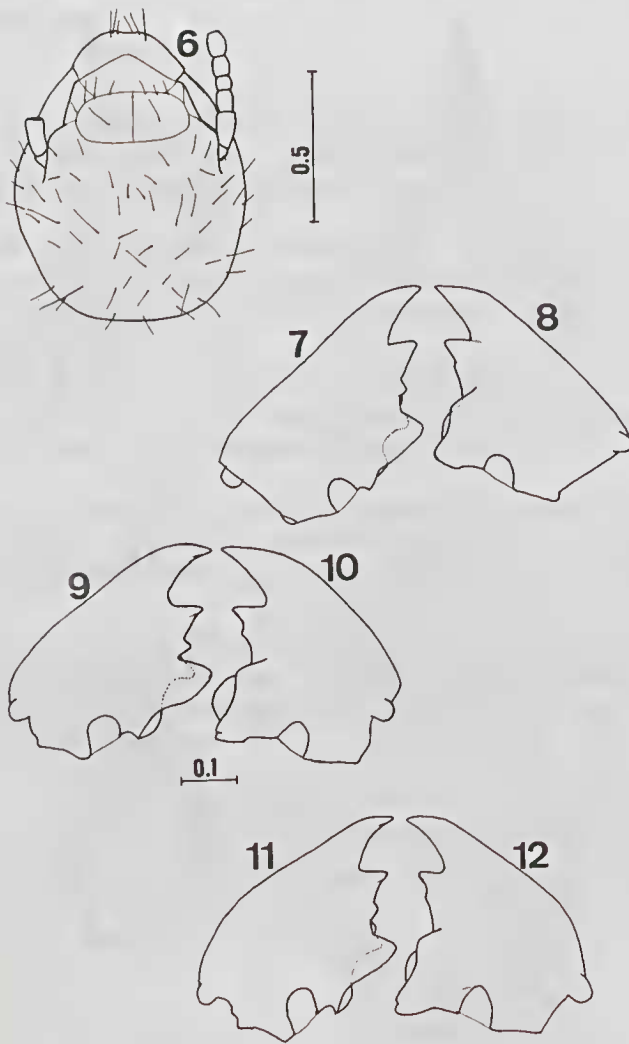
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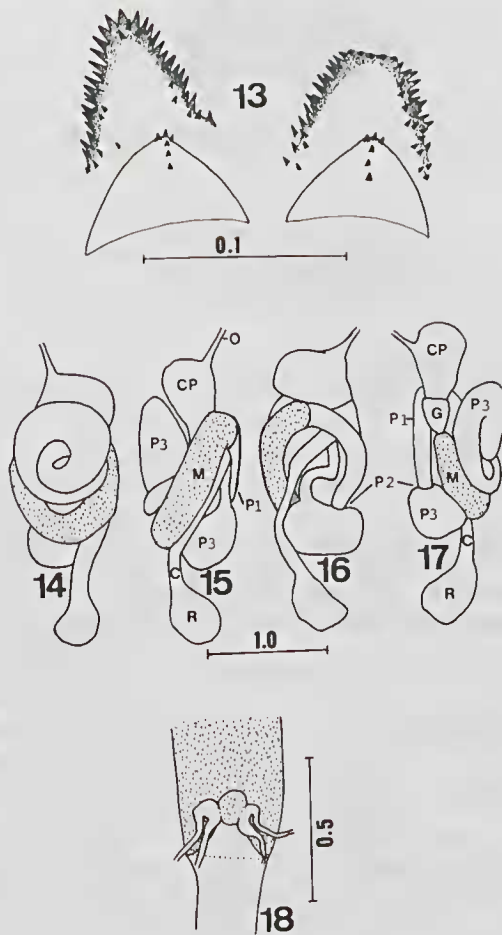
Figures 1-5

Ereymatermes rotundiceps, sp.n. 1. head of soldier, dorsal view; 2. head of soldier, profile; 3. head of alate, dorsal view; 4. pronotum of alate; 5. head alate, profile. Scale in millimeters.



Figures 6-12

Ereymatermes rotundiceps, sp.n. 6. head of worker; 7-8. mandibles of alate; 9-10. mandibles of worker with narrow gap; 11-12. mandibles of worker with broad gap. Scales in millimeters.



Figures 13-18

Ereymatermes rotundiceps, sp.n. Digestive tube of worker: 13. enteric valve armature (there are six equal swellings but only two are in the figure); 14. dorsal; 15. right; 16. ventral; 17. left; 18. mixed segment showing Malpighian tubules insertion. Scales in millimeters. O= oesophagus; CP= crop; G= gizzard; M= mesenteron; P1= first proctodeal segment; P2= enteric valve; P3= paunch; C= colon; R= rectum.